SECOND BI-MONTHLY PROGRESS REPORT
UNIVERSITY OF ALASKA
ERTS PROJECT 110-7

November 30, 1972

Title of Investigation

Application of ERTS-1 imagery to the study of caribou movements and winter dispersal in relation to prevailing snowcover

Principal Investigator/GSFC ID

Peter C. Lent/U1682

Problems Impeding Investigation

Neither a 70 mm projector nor color display unit were available for investigator use during the reporting period.

Progress Report

1. Accomplishments during reporting period

Project investigators obtained airborne data on location and movements of caribou in Northeast Alaska. Early in the reporting period, an estimated thirty thousand caribou crossed into Alaska from Canada. These animals traveled down the Porcupine drainage to the approximate vicinity of Schuman House and Chalkyitsik before dispersing to the north and northwest. Reconnaissance flights late in the reporting period (November 20, 27 and 28) revealed caribou widely distributed on the South Slope of the Phillip Smith and Davidson Mountains. All indications suggest characteristic winter distribution and that these animals will overwinter in Northeast Alaska. Local natives report the last incidence of such large numbers of overwintering caribou occurred in 1958.

Preliminary analysis of imagery indicates that output from MSS Band 6 (e.g., 1051-21002-6) can be used to differentiate between areas of open spruce forest, wet meadows, and braided stream bed. Further indications suggest MSS Band6 (e.g., 1016-21052-6 or 1030-20424-6) can be used to differentiate between wet sedge meadows and the drier Eriophorum tussock communities of the North Slope. The investigators beleive this is possible because Band 6 best depicts the degree of surface moisture which apparently is highly correlated to community types at the same approximate altitude and latitude. Therefore, an image interpreter who has general knowledge of the terrain and community types present can use this imagery to differentiate and map community types. The significance of this finding lies in the potential use of selected imagery for inventories of wildlife habitat.

Mapping of progressive distribution of early snowcover was feasible with MSS outputs particularly Bands 4 and 5 (e.g., 1063-20271-4 and 1063-20271-5).

2. Plans for next reporting period

Because of the very short day-length on the test area during December and January, aerial reconnaissance and fieldwork on the ground is not practical. Therefore, efforts during the next reporting period will be devoted to analysis of existing data. Habitat maps will be prepared using MSS Band 6 summer output and possibly false color composites which have been recently ordered. Snow distribution maps will be prepared using MSS outputs.

Publications

No publications during reporting period

Recommendations

None

Changes in Standing Order Forms

None

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Principal Investigator

Peter C. Lent

Discipline

Environment

Subdiscipline

Phenology/Wildlife Habitat Surverys

Summary of Significant Results

Habitat differentiation was determined feasible using output from MSS Band 6 because of apparent high correlations between surface moisture and habitat type on the test area.

Progressive early snow distribution was readily determined from MSS outputs, particularly Bands 4 and 5.

Approximately thirty thousand caribou migrated into the test area during the reporting period, and aerial reconnaissance data on distribution were obtained for selected areas within several days of satellite overflight.

ERTS IMAGE DESCRIPTOR FORM

(See Instructions on Back)

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ID

DATE November 30, 1972

PRINCIPAL INVESTIGATOR Peter C. Lent

GSFC U682

ORGANIZATION Alaska Cooperative Wildlife Research Unit

PRODUCT ID (INCLUDE BAND AND PRODUCT)	FREQUENTLY USED DESCRIPTORS*			DESCRIPTORS
	River	Lake	Cloud	
108320371M			X	Coast, Island, Mtns.
108721001M	X		X	Coast, Snow, Mtns.
108721004M	X	X	X	Village, Mtns., Forest
108721010M	X	X		Braided Stream, Snow
106920595M			X	Stratiform
106921001M			X	Stratiform, Cumuliform
106921004M			X	Stratiform, Cumuliform
106921010M	X		X	Cumuliform
108320374M	X		X	Stratus, Mtns., Snow
108620543M	X		X	Coastal Plain, Snow
108620545M	X			Village, Mtns., Snow
108620552M	X	X	X	Marsh, Mtns, Snow
108720595M	X		X	Coast, Sea Ice, Stratus
107720042M	X	X	X	Stratocumulus, Mtns.
108120270M	X	X	X	Mtns., Cumulus, Snow
108120263M	X		X	Cumulus, Mtns., Snow
108120254M	X		X	Coastal Plain, Cumulus
108120272M	X		X	Mtns., Snow, Cumulus
104920482M			X	Stratiform clouds
104820430M	X	X	X	Cumulus, Permanent Ice
104820424M	X		X	Stratocumulus, Mtns.
107720035M	X	X	X	Braided Stream
107720033M	X	X		River Ice, Mtns., Snow
109419581M	X	X		River Ice
109419583M	X	X	X	Mtns., Snow, Stratus
109419590M	X	X	X	Thin Stratus, Snow
109021171M			X	Ocean currents
109021173M	X	X	X	Stratiform, Mtns, Snow
109021180M	X	X	X	Mountains, Snow
108821053M			X	Coastline, Sea Ice
108821060M	X		X	Braided Stream, Mtns.
108821062M	X		X	Braided Stream, Snow
108821065M	X		X	Mountains, Snow
109119414M	X			Mountains, Snow

*FOR DESCRIPTORS WHICH WILL OCCUR FREQUENTLY, WRITE THE DESCRIPTOR TERMS IN THESE COLUMN HEADING SPACES NOW AND USE A CHECK (✓) MARK IN THE APPROPRIATE PRODUCT ID LINES. (FOR OTHER DESCRIPTORS, WRITE THE TERM UNDER THE DESCRIPTORS COLUMN).

MAIL TO ERTS USER SERVICES
CODE 563
BLDG 23 ROOM E413
NASA GSFC
GREENBELT, MD. 20771
301-982-5406

GSFC 37-2 (7/72)

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PRODUCT ID (INCLUDE BAND AND PRODUCT)	FREQUENTLY USED DESCRIPTORS*			DESCRIPTORS
	Tundra	Forest	Snow	
101821170M		X		Clouds, River, Mtn.
101520592M				Clouds, Sea Ice
102021281M	X			Altocumulus, Coast
102720225M	X	X		Cumulus, Marsh, River
102820310M				Clouds, Ocean
102820313M	X	X		Cumulus, Marsh, Lakes
102920365M	X			Cirrus, Coastal plain
102920372M		X		Marsh, Lakes, River
103621164M				Cirrostratus, Altocumulus, cumulus
103621170M	X			Braided stream, Mtns.
103621173M	X		X	Cumulus, Mtns.
103721225M	X			Braided stream, Mtns.
104420201M	X		X	Delta, Marsh, Mtns.
104520255M	X	X	X	Marsh, Lakes, River
104620314M	X			Clouds
105020541M	X		X	Rivers, Coast, Mtns.
105020543M		X	X	Cumulus, Mtns., River
105121002M		X	X	Rivers, Mtns., Lake
105120595M	X		X	Lakes, Mtns., cumulus
105221054M		X	X	River, Mtns.,cloud
105221060M		X		Braided stream, cloud
105421164M	X			Cumulus, Coast
105521222M				Cumulus, Altostratus
105521225M	X			Lakes, Stratus
105621281M	X		X	River, Lakes, Cumulus
106220201M			X	River,Mtns., Cloud
106320253M				Ocean, Chaotic clouds
106320255M		X		Marsh, Lakes, Clouds
106320262M		X	X	Rivers, Mtns., Lakes
106320264M		X	X	Rivers, Mtns., Lakes
106320271M		X	X	Rivers, Mtns., Lakes
106420311M	X		X	Coast, Delta, Cirrus
106420313M		X	X	Marsh, River, Lakes

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PRODUCT ID (INCLUDE BAND AND PRODUCT)	FREQUENTLY USED DESCRIPTORS*			DESCRIPTORS
	River	Lake	Cloud	
106420320M	X	X	X	Snow, Mtns.
106420322M	X	X	X	Forest, Snow, Mtns.
106420325M	X	X	X	Snow, Mtns.
106620424M	X	X	X	Coast, Bay, Island
106620430M	X	X	X	Forest, Snow, Mtns.
106620433M	X		X	Forest, Mtns.
106620435M			X	
106620442M	X	X	X	Braided stream, Snow
106820543M	X		X	Mtns.
107121105M			X	Cumuliform clouds
107121112M			X	Stratiform clouds
107121114M	X	X	X	Braided stream, Mtns.
107221171M	X		X	Stratiform cloud, Mtns.
107221173M	X	X	X	Mtns., Snow, Divide
107619574M	X	X	X	River Ice
107619581M	X		X	Snow
107619583M	X		X	Mtns., Snow
101621052M	X	X	X	Coast, Islands, Ice
101621054M	X	X	X	Cumulus, Mtns.
103521110M			X	Cumuliforms
103521113M	X	X	X	Mtns., Permanent Ice
103521115M	X	X	X	Cumulus, Mtns.
106720491M	X	X	X	Forest, Mtns., Stratus
106720484M	X	X	X	Snow, Forest, Mtns.
106720482M	X		X	Coast, Mtns., Snow
107321225M	X	X		Braided stream, Snow
107321223M	X	X	X	Coast, Tundra, Bays
107820085M	X	X		Braided Stream, Snow
107820091M	X	X	X	Mtns., Snow, River Ice
107820094M	X	X	X	Mtns., Snow
107820100M	X	X		Mtns., Snow
107920143M	X	X	X	Braided Stream
107519522M	X	X	X	Mountains, Snow
107519525M	X	X	X	Mtns, Snow, Open water

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